

WHAT IS CLAIMED IS:

1. An electric parking brake apparatus comprising:

a parking brake including a rotation member rotating together with a wheel of a vehicle, and a friction member generating a braking force corresponding to a pressure contact force with which the friction member is pressed against the rotation member;

electric drive means for driving the friction member;

control means for performing parking brake activation control in order to operate the electric drive means until a pressure-contact-force-related quantity, which changes in accordance with the pressure contact force of the friction member, reaches a predetermined target pressure-contact-force-related quantity, to thereby bring the parking brake into an activated state so as to stop the vehicle and maintain the vehicle in a stopped state, and subsequently stop the operation of the electric drive means; and


a force transmission blocking mechanism interposed between the electric drive means and the parking brake, the force transmission blocking mechanism permitting transmission of drive torque of the electric drive means to the friction member, but blocking transmission, to the electric drive means, of a force generated stemming from the pressure contact force of the friction member,

wherein when the magnitude of a force in a rotation direction of the rotation member that the friction member receives from the rotation member changes in a state in which the parking brake is in the activated state upon completion of the parking brake activation control, the control means again performs the parking brake activation control.

2. An electric parking brake apparatus according to claim 1, further comprising service brake state determination means for determining whether a service brake of the vehicle is generating a braking force, wherein when the parking brake activation control ends in a state in which the service brake is generating a braking force and then the service brake stops generation of the braking force, the control means again performs the parking brake activation control.

3. An electric parking brake apparatus according to claim 1, further comprising shift position detection means for detecting the position of a shift lever of the vehicle, wherein when the position of the shift lever is changed after completion of the parking brake activation control, the control means again performs the parking brake activation control.

4. An electric parking brake apparatus according to claim 1, further comprising vehicle total mass change detection means for detecting a change in the total mass of the vehicle, wherein when a change in the total mass of the vehicle is detected after completion of the parking brake activation control, the control means again performs the parking brake activation control.

5. An electric parking brake apparatus comprising: 
a parking brake including a rotation member rotating together with a wheel of a vehicle, and a friction member generating a braking force corresponding to a pressure contact force with which the friction member is

pressed against the rotation member, the parking brake being disposed at a location in the vicinity of a service brake of the vehicle such that heat generated by the service brake is transferred to the parking brake;

electric drive means for driving the friction member;

control means for performing parking brake activation control in order to operate the electric drive means until a pressure-contact-force-related quantity, which changes in accordance with the pressure contact force of the friction member, reaches a predetermined target pressure-contact-force-related quantity, to thereby bring the parking brake into an activated state so as to stop the vehicle and maintain the vehicle in a stopped state, and subsequently stop the operation of the electric drive means; and

a force transmission blocking mechanism interposed between the electric drive means and the parking brake, the force transmission blocking mechanism permitting transmission of drive torque of the electric drive means to the friction member, but blocking transmission, to the electric drive means, of a force generated stemming from the pressure contact force of the friction member,

wherein the electric parking brake apparatus further comprises temperature acquisition means for acquiring a temperature of the service brake, and

wherein when the parking brake is in the activated state upon completion of the parking brake activation control, the control means again performs the parking brake activation control at a time corresponding to a degree of a drop in the acquired temperature of the service brake.

6. An electric parking brake apparatus according to claim 5, wherein the degree of the drop in the acquired temperature of the service brake is the difference between the ambient temperature and the temperature of the service brake acquired at the time of completion of the parking brake activation control.

7. An electric parking brake apparatus according to claim 5, wherein the control means is configured in such a manner that the time at which the parking brake activation control is again performed is advanced as the degree of the drop in the acquired temperature of the service brake increases.

8. An electric parking brake apparatus according to claim 5, wherein the temperature acquisition means is configured to acquire the temperature of the service brake by use of a heat accumulation quantity, which is a quantity of heat accumulated in the service brake stemming from braking action of the service brake, and a heat radiation quantity, which is a quantity of heat radiated from the service brake.

9. An electric parking brake apparatus comprising:
a parking brake including a rotation member rotating together with a wheel of a vehicle, and a friction member generating a braking force corresponding to a pressure contact force with which the friction member is pressed against the rotation member;
electric drive means for driving the friction member;
control means for performing parking brake activation control in

order to operate the electric drive means until a pressure-contact-force-related quantity, which changes in accordance with the pressure contact force of the friction member, reaches a predetermined target pressure-contact-force-related quantity, to thereby bring the parking brake into an activated state so as to stop the vehicle and maintain the vehicle in a stopped state, and subsequently stop the operation of the electric drive means; and

a force transmission blocking mechanism interposed between the electric drive means and the parking brake, the force transmission blocking mechanism permitting transmission of drive torque of the electric drive means to the friction member, but blocking transmission, to the electric drive means, of a force generated stemming from the pressure contact force of the friction member,

wherein the electric parking brake apparatus further comprises temperature acquisition means for acquiring a temperature of the parking brake, and

wherein when the parking brake is in the activated state upon completion of the parking brake activation control, the control means again performs the parking brake activation control at a time corresponding to a degree of a drop in the acquired temperature of the parking brake.

10. An electric parking brake apparatus according to claim 1, wherein the control means is configured in such a manner that the target pressure-contact-force-related quantity used in the parking brake activation control is set to a quantity corresponding to a value near the lower limit value of the pressure contact force necessary to stop the vehicle and

maintain the vehicle in a stopped state.

11. An electric parking brake apparatus according to claim 1, wherein the control means is configured in such a manner that the target pressure-contact-force-related quantity used in the parking brake activation control is changed in accordance with a stopped condition of the vehicle.

12. An electric parking brake apparatus according to claim 11, wherein the stopped condition of the vehicle is the position of a shift lever of the vehicle.

13. An electric parking brake apparatus comprising: 9

a parking brake including a rotation member rotating together with a wheel of a vehicle, and a friction member generating a braking force corresponding to a pressure contact force with which the friction member is pressed against the rotation member, the parking brake being disposed at a location in the vicinity of a service brake of the vehicle such that heat generated by the service brake is transferred to the parking brake;

electric drive means for driving the friction member;

control means for performing parking brake activation control in order to operate the electric drive means until a pressure-contact-force-related quantity, which changes in accordance with the pressure contact force of the friction member, reaches a predetermined target pressure-contact-force-related quantity, to thereby bring the parking brake into an activated state so as to stop the vehicle and maintain the vehicle in a stopped state, and subsequently stop the operation of the

electric drive means; and

a force transmission blocking mechanism interposed between the electric drive means and the parking brake, the force transmission blocking mechanism permitting transmission of drive torque of the electric drive means to the friction member, but blocking transmission, to the electric drive means, of a force generated stemming from the pressure contact force of the friction member,

wherein the electric parking brake apparatus further comprises temperature acquisition means for acquiring a temperature of the service brake, and

wherein the control means changes the target pressure-contact-force-related quantity in such a manner that the pressure contact force corresponding to the target pressure-contact-force-related quantity increases with the temperature of the service brake.

14. An electric parking brake apparatus according to claim 1, wherein the pressure-contact-force-related quantity is tension of a wire which is used in the electric drive means in order to press the friction member to the rotation member by use of the tension of the wire.